

# MANUFACTURING EXTENSION PARTNERSHIP

## Success Stories from the Field

### Pioneer Loading Dock Equipment

#### Tennessee Manufacturing Extension Partnership

#### Pioneer Dock Equipment Improves Process Flow with Lean

##### Client Profile:

Pioneer Dock Equipment manufactures and distributes a wide range of loading dock equipment. The company is located in Spring Hill, Tennessee, and sells through a national network of dealers. Pioneer has been one of the leading manufacturers of quality loading dock equipment for more than 30 years. As such, their products are the perfect compliment to selling lift trucks, material handling equipment in general or overhead sectional doors for commercial and industrial applications. Pioneer employs 33 people.

PIONEER products are top quality and compare favorably to all competitors. Clients find it easy to sell PIONEER products because of a wide variety of mechanical and hydraulic Pit Levelers, Edge-of-Dock and Top-of-Dock Levelers, PIONEER also offers OSHA approved truck restraints.

##### Situation:

Pioneer makes loading docks in three categories. The two largest in volume are edge docks and pit docks. The lead times on these two types of docks were 69 and 31 days respectively. Lead times are defined by the amount of days in inventory from raw, work in process, and finished goods. Pioneer operates in a niche market for loading docks where delivery is a competitive advantage. The plant leadership was very excited about Lean manufacturing and what it would do for their factory. They contacted the Tennessee Manufacturing Extension Partnership (TMEP), a NIST MEP network affiliate, for Lean overview training.

##### Solution:

TMEP facilitated Lean 101 training for Pioneer employees and helped develop a Value Stream Map(VSM) on the edge dock value stream. The VSM showed there was a very long lead time due to the inventories, and it was revealed that four of the processes could be combined into a single work cell. Cellular manufacturing brings 'value-added' steps closer together and eliminates the wastes such as inventory, overproduction, defects, motion, and transportation. The team was already working on pull systems to reduce the raw materials so the company did a Kaizen event on the reduction of waste in the manufacturing processes in order to configure the four processes into one cell. The team for the Kaizen event was cross functional including operators from the processes and plant leadership. TMEP provided information on what a cell looked like and the steps to plan one. The first step took was to break the process work into elements. Each of the work elements were timed and placed on an operator balance chart. Using scaled cutouts of the machinery, the team came up with the planned layout of the new cell. They then rebalanced the work to fit the new cell layout. An action item list was drawn up for the team to move from the current state to the new cell. As a result of TMEP's assistance, the planned cell would reduce lead time and inventories by three days. It also freed up an operator that would be assigned off line to do a large variety of sub components. In addition the team designed the cell to eliminate motion and transportation wastes. The new layout also incorporates flow between the processes, eliminating the need for Pioneer acquiring additional floor space.

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**Results:**

- \* Retained sales of \$12 million.
- \* Realized \$25,000 in cost savings.
- \* Avoided \$35,000 in unnecessary investments in plant and equipment.
- \* Reduced inventory by \$200,000.
- \* Reduced lead time by 3 days.

**Testimonial:**

"We really enjoyed and learned a lot from the training sessions that TMEP delivered and are ready to apply what we learned on our shop floor."

Joey Cromer, Operations Manager